WATERTOWN ARSENAL, BUILDING NO. 39
(Laboratory)
Wooley Avenue
Watertown
Middlesex County
Massachusetts

HAER No. MA-20-U



PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Northeast Field Area
Chesapeake/Allegheny System Support Office
National Park Service
U.S. Custom House
200 Chestnut Street
Philadelphia, PA 19106

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# HISTORIC AMERICAN ENGINEERING RECORD

## WATERTOWN ARSENAL, Building No. 39
(Laboratory)

HAER NO. MA-20-U

Location: Wooley Avenue, Watertown, Middlesex County, Massachusetts.

UTM: 19.321390.4692130
USGS QUAD: Newton, Massachusetts

Engineer/Architect: Densmore & LeClear, Boston.

Date of Construction: 1922; major interior modifications 1953; two floor rear addition, 1955.

Present Dwner: U. S. Army Materials Technology Laboratories (AMTL)
Arsenal Street
Watertown, Massachusetts 02172

Present Use: Research laboratories, including the Metals and Ceramics Laboratory, the Organic Materials Laboratory, and the Mechanics and Structural Integrity Laboratory.

Significance: Watertown Arsenal's acquisition and conversion of Building No. 39 into scientific laboratories represents the Arsenal's final phase of twentieth century growth. During World War II, the arsenal expanded its industrial and research facilities through new construction and property acquisition. Building No. 39, which had been built in 1922 as a piano factory, sat on the last parcel of land bought by the Arsenal, and was incorporated into the facility as a series of offices, laboratories, and storage areas. In the years following World War II, large scale manufacturing was gradually eliminated at Watertown, and the Arsenal's primary mission became materials research. In 1953, Building No. 39 was converted into the Watertown Arsenal Laboratories, and continues in use today as one of AMTL's important research laboratories. Research conducted there has included structural analysis of components for the Jupiter Missile, structural integrity of nuclear projectile components, and presently includes solid mechanics technology.

Project Information: This documentation was undertaken in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, prior to base realignment and closure.

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## I. ARCHITECTURAL DESCRIPTION AND MODIFICATIONS

Building No. 39, the Laboratory, is located at the southwest corner of the present-day AMTL facility and is surrounded by Wooley Avenue (north), Welch Avenue (east), and Thompson Street (east and south). The building rises five stories from a concrete foundation to a flat, tar and gravel roof with a shallow parapet. The original structure was the rectangular southern portion of the building. It is 11 by 4 bays (229 ft. by 83 ft.), with two service towers on the north (rear) elevation. The reinforced concrete and brick veneer, pier and spandrel walls are divided into 20-ft. bays, with the spandrels recessed slightly behind the piers. The bays contain multi-light metal casement windows with concrete slip sills. Cast concrete weatherings crown the piers at the top of the fourth story, and the entire fifth floor is slightly recessed. A cast concrete stringcourse, flush with the wall, is located just below the roofline. The main entry occupies two bays (bays 7 and 8 from the southwest corner) on the south facade, and consists of a concrete canopy and plate glass doors. In 1955, an extensive two-story brick addition (88 ft. by 203 ft.) was constructed along all but the end bays of the north elevation, nearly doubling the size of the first two floors. The rear (north) is excavated into a slope, and only the second floor is visible on Wooley Avenue. The addition contains a freight entrance corridor on the west side leading to an open central court. The distinction between the original building and addition is readily apparent from the exterior. In 1971, the exterior brickwork of the main block was repointed, steam cleaned, and silicone sealed.

Because the building was built for industrial purposes, the original interior plan of the main block consisted mostly of open space. The reinforced concrete structural systems consists of 20-ft. typical bays of column caps with drop panels supporting slab floors. The column diameter decreases with each floor and reduced bearing load. Currently, each floor is divided into a maze of laboratory and office space, created beginning in World War II. The typical arrangement on each floor has offices along the south and end walls and laboratories located on the windowless interior. Interior finishes are concrete block and plaster walls, acoustical tile ceilings, and vinyl tile floors. The irregular floor plan of the two-story addition includes maintenance, shipping, and supply areas, as well as testing areas. Walls are concrete block and floors are concrete.

## II. HISTORICAL INFORMATION AND SIGNIFICANCE

Building No. 39 was constructed in 1922 as a piano factory for the Vose & Sons Piano Company. Both the building and the land upon which it was built were privately owned. In 1941, as Watertown Arsenal was expanding its manufacturing and research facilities to meet the increased demands of Word War II, the Arsenal purchased a seven acre tract of land along its western boundary. The property included six houses - all of which were razed - and the old piano factory, which had been converted to the Simmons Mattress Factory. During the 1940s and early 1950s the building served various functions. It contained a machine shop and was the headquarters for the machine tool section of the Arsenal's Apprentice School, as well as housing several government agencies, including the U. S. Atomic Energy Commission, the U. S. Air Force Geophysics Laboratory, and the U. S. Army Corps of Engineers Soils Laboratory and Engineering Warehouse.

In 1953, Building No. 39 was officially designated the Watertown Arsenal Laboratories, and the interior space was reconstructed to serve as the Arsenal's mechanical and metallurgical laboratories. Although the building's laboratories became the Army Materials Research Agency in 1962, and changed again to the Army Materials and Mechanics Research Center in 1968, its basic function as a materials research laboratory has remained unchanged since 1953. Current research is conducted

in the Metals and Ceramics Laboratory, the Organic Materials Laboratory, and the Mechanics and Structural Integrity Laboratory. Much of the specific information concerning the activities of these laboratories is classified.

## III. BIBLIOGRAPHY

AMTL, Facilities Engineering, Watertown, Massachusetts. Architectural and engineering plans and drawings.

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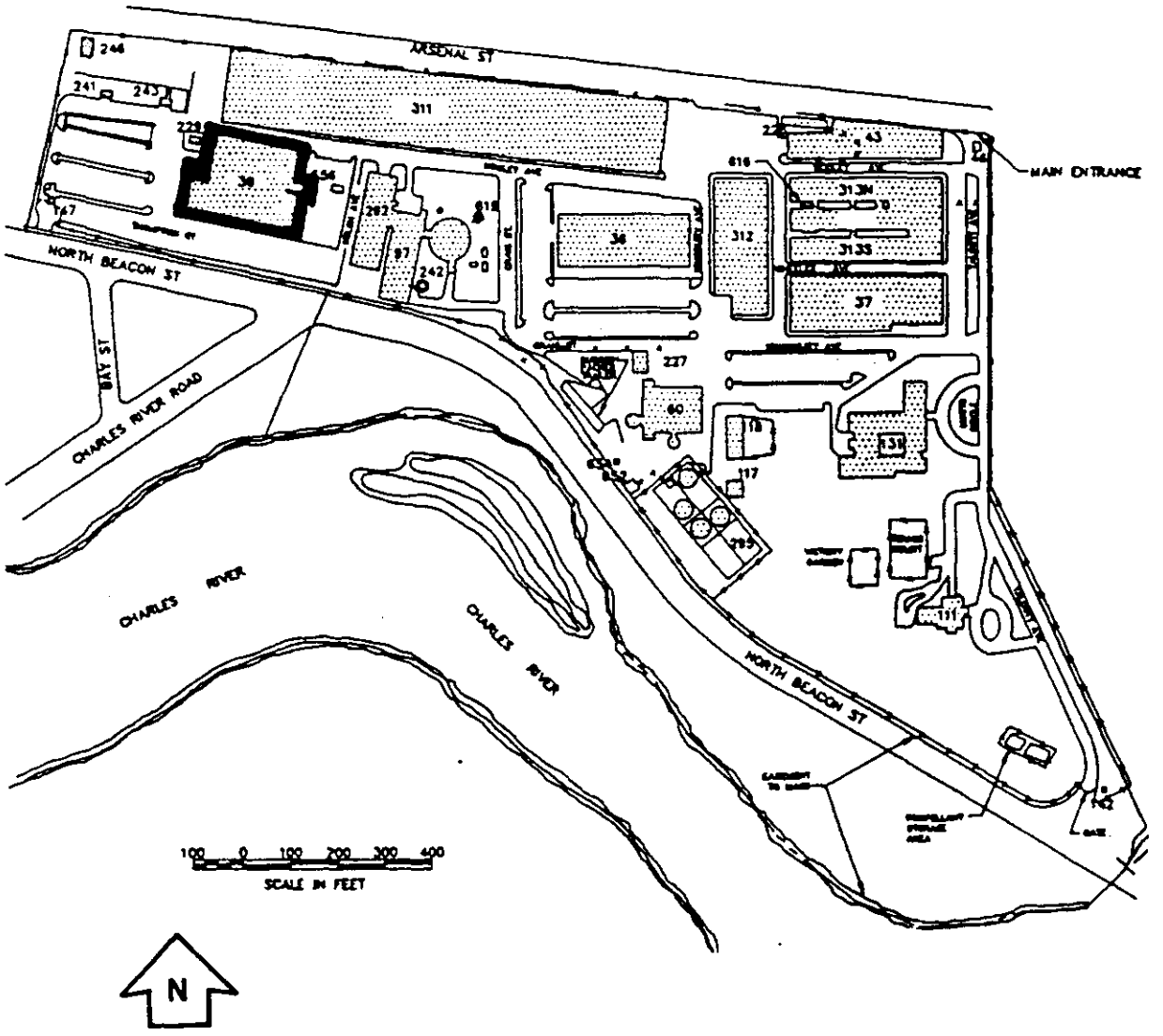
Bahr, B. "Building No. 39, Piano Factory/Laboratories, HABS/HAER Inventory Card." Washington, D.C.: Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior, July 1982.

Burns, Libby Baylies and Betsey Bahr. Historic American Buildings Survey of the United States Army Materials and Mechanics Research Center, Watertown, Massachusetts. Washington, D.C.: Historic American Buildings Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior, Summer 1982.

Dobbs, Judy. A History of the Watertown Arsenal 1816-1967. Watertown, Massachusetts: Army Materials and Mechanics Research Center, 1977.

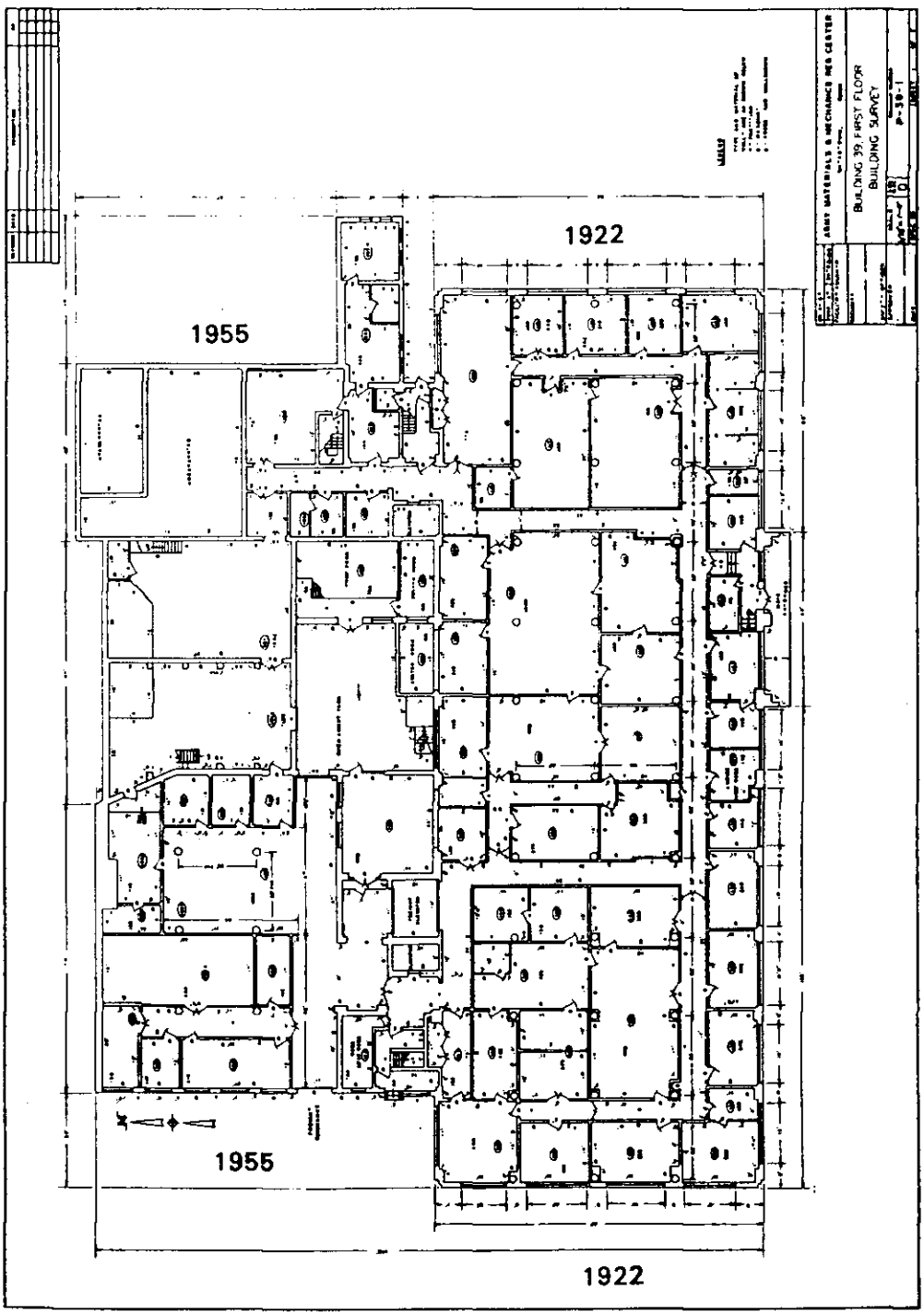
For further sources, consult Burns and Bahr, 1982, previously submitted to the Library of Congress as HABS/HAER documentation for Watertown Arsenal, HAER No. MA-20.

**LOCATION MAP WITHIN WATERTOWN ARSENAL**




Source: E. G. & G., USATHAMA report, 1988.

**1984 AMMRC BUILDING SURVEY FLOOR PLAN**




Source: Engineering Division, AMTL, Watertown, 1984.

**Historic Photograph, October 4, 1944. View of south (front) and east elevationa, looking northwest.** U.S. Army Photograph: Corps of Engineers, New England Division. File No. 63. (Copy located at U.S. Army Corps of Engineers, New England Division, Waltham, Massachusetts).